



2016-08-19

National Transportation Safety Board
Office of Marine Safety (MS-10)
490 L'Enfant Plaza East, S.W., Rm 6302
Washington, DC 20594-2000
Att.: Robert Jon Furukawa

Your ref.:
Our ref.:

VIKING inflatable liferafts on board El Faro sinking October 1, 2015

Dear Sir,

In reply to your email of August 18, 2016 to Mr. Al Osle - VP Viking Americas region, please receive the following statement on information requested:

The inflatable liferafts with serial nos. 10245946, 10245947 and 11355928 registered on board El Faro and manufactured by VIKING Life-Saving Equipment was examined, type approved, manufactured and serviced in conformity with the following US regulations and standards of the International Maritime Organization (IMO), as amended:

- US 46 CFR § 160.151 incorporating by reference the following international standards:
- IMO International Convention on Safety of Lives at Sea (SOLAS) 1974;
- IMO International Life-Saving Appliances (LSA) Code (MSC.48(66));
- IMO Revised recommendation on testing of life-saving appliances (MSC.81(70)); and
- IMO Recommendation on conditions for the approval of service stations for inflatable liferafts (A.761(18)).

While none of the above instruments provides any details of the envisaged operational conditions or limitations related hereto, the following may provide some guidance for your consideration.

US 46 CFR §160.151-15, -17 and -27 largely sets the performance and test requirements for SOLAS inflatable liferafts by incorporated references to the LSA Code and the Revised recommendation on testing of life-saving appliances. We have found that the following performance and test requirements therein may be of relevance to your enquiry:

- LSA Code para 1.2.2.8, on general requirements for all LSA required that if they are to be used in a seaway that they be capable of satisfactory operation in that environment;
- LSA Code para 4.2.5.1, on the stability of inflatable liferafts in a seaway;

***Note for both 1.2.2.8 and 4.2.5.1 that a definition or specifications of "a seaway" is absent in all referenced instruments.**



- LSA Code para 4.1.1.1, requiring that “every liferaft shall be so constructed as to be capable of withstanding exposure for 30 days afloat in all sea conditions.”;

Recalling that in accordance with SOLAS Chapter III, Regulation 4 the Administrations shall ensure that compliance with the requirements of the LSA Code is demonstrated in accordance with the Revised recommendation on testing of life-saving appliances, the following test requirements may be of relevance:

- MSC.81(70) para 5.5, on a 30 days mooring out tests where an inflated and fully laden liferaft is left afloat for 30 days at sea or in a harbor;
- MSC.81(70) para 5.12, on canopy closure test in which the canopy is subject to a hose test exerting a considerable force on the canopy;
- MSC.81(70) para 5.20, on various tests to be performed in wind conditions of 30 m/s,
- MSC.81(70) para 5.17.13.2.3, on test requirements for outer canopy fabrics;
- MSC.81(70) para 5.19, on submergence test for automatically self-righting and canopied reversible liferafts* to be performed in a sea state of at least 2 m significant wave height in association with a wind force of Beaufort force 6; and

***Note that the liferafts on the El Faro were not of the automatically self-righting or canopied reversible type and as such not subject to this test.**

- MSC.81(70) para 12.6.2, on a performance test for marine evacuation systems including associated liferafts in a sea state associated with a wind of force 6 on the Beaufort scale, and in association with a significant wave height of at least 3 m.

***Note that the liferafts on the El Faro were not associated with a marine evacuation system and as such not subject to this test. In terms of prescriptive sea conditions during testing of any life-saving appliances and arrangements this is the most demanding of all above referenced instruments.**

The above listed performance requirements and tests are only a fraction of those required by US 46 CFR §160.151 and the IMO standards, however in our opinion they are those that may best indicate the assumed performance limitations of inflatable liferafts. Bearing in mind that we may not fully comprehend the rationale of the experts of the IMO membership drafting these standards 3 – 4 decades ago, we would seem it reasonable to assume that they expected an inflatable liferaft to be capable of functioning in a sea state associated with a wind of force 6 on the Beaufort scale (10.8–13.8 m/s) with the wind gusting for short periods up to 30 m/s.

However it is not our opinion that such assumptions may be used as a base for setting or evaluating the operational and/or voyage limitations to ships as such. Any decision by the ships master, officers and/or company with regards to the evaluations of the safety of an intended voyage should in our view always be based on the expected voyage conditions and the ships capabilities to safely navigate in these conditions. This decision should be irrespective of the standards of the life-saving appliances carried on board as in our understanding of the laws of the sea it would be unlawful to consider the carried life-saving appliances as an operational mitigation of hazardous or unsafe navigation. This is the topic of other US and international instruments of which we have no relevant expertise to offer.



Finally, with regards to the referenced tests to be performed during various years of servicing such as Necessary Additional Pressure (NAP) test, I may inform you that as documented in our US Coast Guard approved service manuals the frequency of such test follows US 46 CFR §160-151.57 incorporating the IMO Recommendation on conditions for the approval of service stations for inflatable liferafts. The latter provides a table of test frequencies in Appendix 2 inserted below this letter for easy reference. As may be seen the NAP test was not omitted at the last annual service and in fact due at the next annual servicing.

Best regards
VIKING LIFE-SAVING EQUIPMENT LTD.

Kent Molsted Jorgensen
Rules & Regulations

Appendix 2

Frequency of NAP tests: working pressure (WP), gas inflation (GI) and floor seam strength (FS)

Servicing intervals	Test method
End of first year	WP test
End of second year	WP test
End of third year	WP test
End of fourth year	WP test
End of fifth year	GI test
End of sixth year	WP test
End of seventh year	WP test
End of eighth year	WP test
End of ninth year	WP test
End of tenth year	GI test + FS
Eleventh to fourteenth year	NAP test + FS
Fifteenth year	GI test + NAP + FS
Sixteenth to nineteenth year	NAP test + FS
Twentieth year	GI test + NAP + FS
Twenty-first to twenty-fourth year	NAP test + FS
Twenty-fifth year onwards	GI test + NAP + FS

- NAP - Necessary additional pressure test (appendix 1)
- WP - Working pressure (compressed air)
- GI - Gas inflation (fitted gas)
- FS - Floor seam